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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/621,505	07/17/2003	Toshiaki Yoshihara	1100.68143	1976

7590

09/09/2005

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Chicago, IL 60606

EXAMINER
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DUONG, THOI V

ART UNIT	PAPER NUMBER
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2871

DATE MAILED: 09/09/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

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**Office Action Summary**

Application No.

10/621,505

Applicant(s)

YOSHIHARA ET AL.

Examiner

Thoi V. Duong

Art Unit

2871

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 03 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 20 June 2005.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-7, 14 and 15 ~~is/are~~ are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-7, 14 and 15 ~~is/are~~ are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### **DETAILED ACTION**

1. This office action is in response to the Amendment filed June 20, 2005

Accordingly, claims 1 and 14 were amended, and claims 8-13 were cancelled.

Currently, claims 1-7, 14 and 15 are pending in this application.

### ***Response to Arguments***

2. Applicant's arguments with respect to claims 1 and 14 have been considered but are moot in view of the new ground(s) of rejection.

### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-6, 14 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 2000-275685 (JP'685) in view of Bradshaw et al. (Bradshaw, USPN 4,969,719).

Re claims 1 and 14, as shown in Fig. 1, JP'685 discloses a liquid crystal display device 70 (as well as a manufacturing method of the same) comprising two substrates 81a and 81b sandwiching a liquid crystal 85 having spontaneous polarization (paragraphs 48, 106 and 129), and electrodes 82a and 82b for applying a voltage to said liquid crystal (paragraph 31),

wherein said liquid crystal shows a monostable state in which an average molecular axis of a director of liquid crystal molecules is aligned in a single direction and

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present in a first position when no voltage is applied, shows a state in which the average molecular axis is tilted in one direction from the first position at an angle corresponding to a magnitude of a voltage of a first polarity and present in a second position when the voltage of the first polarity is applied, and shows either a state in which the average molecular axis maintains the first position or a state in which the average molecular axis is tilted in a direction opposite to said one direction from the first position and present in a third position when a voltage of a second polarity opposite to the voltage of the first polarity is applied (Abstract).

In addition, the manufacturing method of JP'685 comprises the steps of:

introducing said liquid crystal between said two substrates (paragraph 102);

performing an alignment treatment to bring said liquid crystal into the monostable state by providing a period in which the temperature of said liquid crystal during cooling is kept within a temperature range showing the cholesteric phase, after heating said liquid crystal (paragraphs 39, 99, 100 and 102),

wherein, re claim 15, the alignment treatment is performed after heating said liquid crystal to an isotropic phase (paragraph 102).

JP'685 also discloses a phase sequence comprising isotropic phase – cholesteric phase – chiral smectic C phase from a higher temperature side (paragraph 94).

JP'685 discloses a liquid crystal display device that is basically the same as that recited in claims 1 and 14 except for a temperature range of the cholesteric phase of the

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phase sequence of said liquid crystal has a temperature width of not less than 3 degrees C.

Bradshaw discloses that a temperature range of a cholesteric phase of a phase sequence of a liquid crystal has a temperature width of not less than 3 degrees C (5 degrees C) (col. 3, lines 16-21 and col. 5, lines 40-55),

wherein, re claim 2, the temperature range of the cholesteric phase of the phase sequence of said liquid crystal has a temperature width of not less than 5 degrees C (5 degrees C ) (col. 3, lines 43-48);

wherein, re claim 4, the temperature range of the cholesteric phase of the phase sequence of said liquid crystal has a temperature width of not less than 10 degrees C (+/- 5 degrees C) (col. 6, lines 42-46); and

wherein, re claims 3, 5 and 6, said liquid crystal is a ferroelectric liquid crystal (col. 1, lines 56-68).

Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the liquid crystal display device of JP'685 with the teaching of Bradshaw by employing a liquid crystal having a sufficient broad temperature range of the cholesteric phase of the phase sequence of said liquid crystal so as to provide uniform alignment (col. 5, lines 40-42).

5. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over JP 2000-275685 (JP'685) in view of Bradshaw et al. (Bradshaw, USPN 4,969,719) as applied to claims 1-6, 14 and 15 above and further in view of Yoshinaga et al. (Yoshinaga, USPN 6,791,527 B2).

As shown in Figs. 1 and 5, the liquid crystal display device of JP'685 comprises a data-writing scanning voltage (or voltage of first polarity) and a data-erasure scanning voltage (or voltage of second polarity) applied to the electrodes 82a and 82b (Abstract and paragraphs 58-71).

The liquid crystal display device of JP'685 as modified in view of Bradshaw above includes all that is recited in claim 7 except for a back-light driven by a field-sequential color scheme.

Yoshinaga discloses a liquid crystal display device comprising a back-light driven by a field-sequential color scheme (col. 5, lines 35-49).

Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify the liquid crystal display device of JP'685 with the teaching of Yoshinaga by employing a back-light driven by a field-sequential color scheme to effect color display based on a timewise additive process and improve quality of motion images while suppression power consumption (col. 4, lines 43-45 and col. 5, lines 48-49).

### ***Conclusion***

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within

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TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

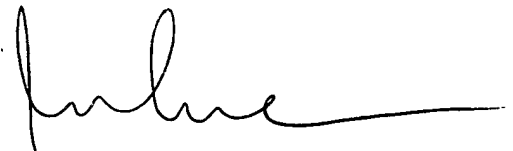
7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thoi V. Duong whose telephone number is (571) 272-2292. The examiner can normally be reached on Monday-Friday from 8:30 am to 4:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Kim, can be reached at (571) 272-2293.

Thoi Duong



08/31/2005



DUNG T. NGUYEN  
PRIMARY EXAMINER